AUTORITÉ DES MARCHÉS FINANCIERS

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The AMF's Scientific Advisory Board addresses the issue of central clearing

On April 21st, the Scientific Advisory Board of the Autorité des Marchés Financiers discussed the issue of central clearing counterparties (CCPs) through two distinct academic presentations. Guillaume Vuillemey (winner of the 2016 AMF Young Researcher Award) documented and analyzed one of the scarce examples of CCP failure, while Stéphane Crépey (member of the Scientific Advisory Board) investigated the cost structure of central clearing.

The AMF’s Scientific Advisory Board held the first meeting of its new mandate on 21 April 2017. The main topic concerned central clearing counterparties (CCP) and the meeting focused on two presentations:

- Guillaume Vuillemey (HEC Paris), of the 2016 AMF Young Researcher Award, presented his work on the mechanisms that led to the failure of the French clearing house, Caisse de liquidation des affaires et marchandises (CLAM) in 1974.
- Stéphane Crépey (Université d’Évry) presented his work on measuring the cost of counterparty risk for a clearing member.

Presentation by Guillaume Vuillemey (“The Failure of a Clearinghouse: Empirical Evidence”)

Guillaume Vuillemey presented the results of his research (carried out with Vincent Bignon) on the analysis of the failure, in 1974, of a French CCP, the Caisse de Liquidation des Affaires et Marchandises (CLAM). This occurred after the bursting of the sugar market bubble, a market on which the CCP was very active, and the subsequent default of one of its members.

His research focused on potential risk management flaws prior to the failure and concluded, from this point of view, that there had been no moral hazard: the CCP had not applied a policy of low margin calls in order to gain market share. On the contrary, it did indeed increase its margin calls during the bubble period. However, the authors highlighted dysfunctions as the bubble burst, when one of the major CCP members (Nataf) ran into distress. First of all, the CCP and Nataf probably manipulated execution and/or settlement prices: in the run-up to the default, prices moved favourably to benefit the most distressed players and, according to the authors, the CCP tried to limit margin calls for distressed investors to the detriment of solvent investors, who saw their margin calls increase. Subsequently, the CCP deliberately delayed the declaration of Nataf's default and therefore the liquidation of open positions (even though other members offered to purchase them), a decision that proved to be fatal for the CCP; in the meantime it also carried on registering Nataf’s transactions. The authors concluded that (i) a CCP owned by its members is preferable to a demutualised CCP, a circumstance which, in this case, favoured the alignment of the interests of the defaulting member with those of the CCP and that (ii) the nature of the final investors had a significant impact on the soundness of clearing members and the CCP itself. In the case of CLAM's failure, it transpired that Nataf's final clients were essentially retail investors who were unwilling or unable to pay margin calls, resulting in the member's default.

The members of the Scientific Advisory Board congratulated Guillaume Vuillemey on the quality of his work, notably on the considerable archive work entailed and on the importance of the responses provided with regard to financial stability. The work underlined the utility of setting ex-ante recovery and resolution rules for CCPs, as well as the central role played by governance. In particular, the Board noted that, in the case under review, the interests of the clearing members and the shareholders were not aligned, and this factor weighed heavily on the end result, in other words, the failure of the CCP.

Discussion focused on the possible contagion effects on the other asset classes in which CLAM dealt or on other CCPs that cleared sugar contracts, on the potentially pro-cyclical effects of margin calls in the case studied, and on whether this case is pertinent in current markets. In this respect, certain members felt that the introduction of variation limits and the existence of multi-daily margin calls as practiced today constitute progress in risk management. The impact of the market structure (monopoly vs. competition) was also discussed. Guillaume Vuillemey concluded the discussion by emphasising that one of the main reasons for the failure of the French CCP lay in its high proportion of retail clients, since it was more difficult for them to understand the commodities derivatives markets as a whole, as well as to grasp how they function and the risks involved. In the case of CLAM, there was a dual problem of the principal-agent relationship when setting the margins: the first lay between the CCP and the brokers, the second between the brokers and the final clients. This situation led to a system unsuited to final clients, who were unable to meet margin calls when sugar prices began to fall, which resulted in the default of the CCP member and then the CCP itself.

Presentation by Stéphane Crépey (Université d'Évry): "XVA metrics for CCP optimization"

Stéphane Crépey, a professor of the mathematics department of Université d'Évry and a new member of the AMF Scientific Advisory Board presented a work in progress (with Yannick Armenti) on the use of valuation adjustments (XVA measures – economic capital valuation methods) to optimise the operation of clearing houses.

Stéphane Crépey first ran through the arguments traditionally put forward to defend the CCP obligation, as well as the counter-arguments: minimisation of the risk of default of a counterparty, but concentration of risk in the CCPs; netting of exposures to a given product/instrument, but loss of netting between asset classes (for example, between an underlying asset and its derivative); increased transparency of information (positions, transactions) for the supervisory authority and the CCP at the expense of clarity for clearing members who are at pains to know to whom they are ultimately exposed via the default fund; and lastly a more transparent and efficient default resolution procedure via the CCP.

Stéphane Crépey then reviewed the main cost items related to central clearing counterparties and their operation, namely variation margin (which follows daily price variations), initial margin (which helps absorb price variations during the period of liquidation of a defaulting member's position) and contribution to the guarantee (or default) fund. These different items of cost can be estimated using the XVA method.

The article focuses on two main areas: the optimal operating rules of the mutualized default fund (size of the fund, remuneration or not) and the utility of using a specialist lender to finance the initial margins.

Default funds are currently subject to the EMIR "Cover 2" rules. They must provide cover against the default of the largest clearing member, and alternatively against the simultaneous default of the second and third largest members. Additionally, each member makes contributions proportionate to its initial margin. The authors consider that this ad hoc rule generates inefficiencies and hence suggest determining the total amount of the fund as well as the various contributions using an expected shortfall (ES) method. This method has the advantage of integrating credit risk into a calculation that currently only takes into account the size of the exposure in the allocation of the fund contributions. Additionally, the total amount contributed would be much lower than it is under the current rule. Finally, the authors suggest that the CCPs could remunerate the default fund, which would even allow them to potentially call on outside investors attracted by the risk-reward trade-off.

In their estimation of central clearing costs, the authors highlight the predominant role of initial margins, and question their financing methods. Stéphane Crépey suggests calling on specialist lenders rather than using unsecured borrowing. In the event of a clearing member default, the entire initial margin would not necessarily be used up, and such lenders would be able to recover the residual amount (which the failed member could not do, as it would have disappeared), which would significantly reduce the borrowing cost (reduced fivefold according to the authors' modelling).

The members of the Scientific Advisory Board thanked the author for the interest his work has aroused, which aims to make central clearing more attractive, notably by minimising clearing costs for clearing members. The two main contributions of the article were highlighted: (i) the proposal of an alternative method for calibrating the default fund and each member's contributions and (ii) the pertinence of using a specialist lender to finance the initial margins. In this respect, the questions regarding the identity of the specialist lenders and the rules to which they would necessarily be subject, as well as regarding the structure of the new market envisaged, were extensively debated. For the authors, this would be a new activity managed by private agents, and not by a central bank.

Discussion also focused on potentially negative externalities that could be induced by a change in the current framework governing contributions to the default fund. Certain participants regretted that the analysis did not take into account final clients of CCPs, namely asset managers, since the capital immobilised in the CCPs is also intended to protect them. On this point, Stéphane Crépey acknowledged the importance of these final players, but explained that the specification adopted helped maintain a closed system which facilitates modelling. Finally, the principle of default fund remuneration was discussed extensively, with some members considering it to be equivalent to an insurance premium against the risk of default (such as expenses levied by the CCP) and as such, a remuneration cannot be justified.

Read more

- The Failure of a Clearinghouse: Empirical Evidence - V. Bignon and G. Vuillemey - Slides
- The Failure of a Clearinghouse: Empirical Evidence - V. Bignon and G. Vuillemey
- XVA Metrics for CCP Optimisation - Y. Armenti and S. Crepey - Slides
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